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Workplace characteristics and work disability onset for men and women

Summary

Objectives: This paper investigates the association between job characteristics and work disability among men and women in older working ages in the United States. We examine whether the association persists when controlling for major chronic disease experience. We also address whether job characteristics are ultimately associated with the receipt of disability benefits.
Methods: Data are from the Health and Retirement Survey and are nationally representative of noninstitutionalized persons 51–61 in 1992. Disability onset is estimated using a hazard modeling approach for those working at wave 1 (N = 5999). A logistic regression analysis of disability benefits is based on a risk set of 525 persons who become work-disabled before the second interview.
Results: Women's disability onset and health problems appear less related to job characteristics than men's. For men, work disability is associated with stressful jobs, lack of job control, and environmentally hazardous conditions but is not associated with physical demands. Participation in disability benefit programs among those with work disability is unrelated to most job characteristics or health conditions
Conclusions: Understanding of the differing process to work disability for men and women and the relationship between work and health by gender is important for current policy development.

Keywords: Disability – Job characteristics – Gender – Health and retirement survey.

Definitions of disability and approaches to operationalizing the concept differ substantially across countries. In the United States disability is usually defined as the inability to perform an expected social role, and work disability is an inability to carry out routine activities of one's job because of a physical or mental health condition (Verbrugge & Jette 1994). Work disability is likely to be affected by the factors defining the day-to-day qualities of work activity as well as the worker's health behaviors which also are partly job related (Wray 1996). The nature of work may both cause health problems *and* place demands that are incompatible with certain health problems (Hayward et al. 1998). For instance, physically demanding jobs are both more likely to cause musculoskeletal problems and less likely to be compatible with these problems than less demanding jobs (Ostlin 1988). Job stress or autonomy may be a risk factor for heart attack (Johnson et al. 1996; Johnson & Christenson 1998; Karasek 1990; Karasek & Theorell 1990; Karasek et al. 1988), and having had a heart attack may mean that one is disabled if one's occupation is an airline pilot but not if one works as a store manager.

Past studies have tended to see disability as an absolute rather than relative condition. The assumption is that disability is an indicator of physical or mental health rather than the intersection of health and the work environment. In addition, researchers have usually ignored the role of circumstances outside the workplace. Hardy and Pavalko (1986) observed, however, that the types of symptoms and activity limitations associated with men's work disability differed across occupational groups and by retirement status in a sample of older American men. In particular, among men with the same symptoms and activity limitations, blue-collar workers were less likely to report work disability than white-collar workers or retirees.

Past studies have also tended to view disability as the outcome of exposure to various working conditions, ignoring the reciprocal relationships among lifestyle, work, and health over the career cycle (Bound et al. 2003; Ilmarinen 1994; Moore & Hayward 1990) – older workers' health is an outcome of both work and lifestyle, *and* work and lifestyle

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are affected by health. Older workers' working conditions are thus an outcome of health selection processes as well as sources of future work disability. In this study, we investigate the role of job characteristics on the subsequent onset of work disability, but control for the presence of major chronic diseases and conditions that may have operated as selection mechanisms, i.e., influenced the types of jobs people hold at baseline. In addition, we build on research that has linked working conditions to specific diseases, e.g., heart disease, respiratory conditions, and occupational injuries (Eisner et al. 2002; Zwerling et al. 1998; Karasek et al. 1988), and examine the degree to which the association between working conditions and work disability onset is tied to the onset of major disease conditions.

Because both work environment and health differ significantly by gender, this analysis is done separately for men and women. Compared to men, women work in jobs that are less physically demanding, but these jobs also offer fewer opportunities for self-direction, and job tasks are more routinized (Pienta & Hayward 2002; Roxburgh 1996). Women are also concentrated in fewer occupations compared to men, and, in many cases, men and women work in different occupations. The distributions of health affecting circumstances of men's and women's work are thus expected to differ (Loprest et al. 1995). Women also may be more vulnerable to some job conditions such as task routinization (Roxburgh 1996) and physical demands (Loprest et al. 1996), although the evidence is sparse.

The higher levels of morbidity among women in spite of lower levels of mortality have long been recognized (Verbrugge 1989). Among men and women approaching retirement, for example, men report health problems that elevate their mortality risk (e.g., heart disease) whereas women are more likely to report musculoskeletal problems and nonfatal disabling conditions (Pienta et al. 2000; Santiago & Muschkin 1996). Health conditions leading to work disability are thus expected to differ for men and women.

Most studies of the relationship between work and health have not considered the role of lifestyle factors outside of work. Health risk behaviors such as smoking and alcohol consumption are work-related but they also stem from education and family preferences early in life. Education not only channels people into jobs that differ in their health risks, but it also influences lifestyle, consumption of health care information, and exposure to life stresses (House et al. 1994; Park et al. 1993; Pienta et al. 1994). In order to understand the role of working conditions on work disability, we thus need to take account of alternative mechanisms that come into play in affecting men's and women's health.

One potential consequence of work disability is a health-mandated labor force exit and disability pension receipt. Similar to many European countries, the United States' social security pension policy provides support for persons whose health no longer allows them to work in their usual job. Numerous studies have examined factors influencing disability pension receipt, with much of the emphasis placed on policy changes in benefit levels (Ferguson 2001; Warner 2001). Recently, some researchers have examined the extent to which non-medical factors play a role in disability pension receipt, the idea being that job characteristics and education may influence who is awarded benefits (Gjesdal & Bratberg 2002; Karpansalo et al. 2002; Krokstad et al. 2002). Current evidence supports this idea, showing that low education and physical demands increase the chances of a disability pension. Education appears to have a direct effect (Krokstad et al. 2002), while physical demands appear to operate indirectly through a higher risk of musculoskeletal disorders (Karpansalo et al. 2002). Evidence is sparse regarding whether these associations differ for men and women.

This study expands on earlier research by clarifying the interactive process by which workplace characteristics and health conditions affect work disability and how this might differ for men and women. First, we examine whether work disability onset is more likely for workers with differing job characteristics. We also control for the presence of diseases and conditions at baseline in an attempt to control for selection processes. Then we examine the effect of both job characteristics and the onset of diseases and conditions on the onset of disability to clarify whether the effect of job characteristics is through the health effects of jobs or whether it is more directly through the demands of the work environment. Finally, we introduce the effect of additional lifestyle and socio-economic circumstances to see whether their inclusion in the model changes the effects of job characteristics. Our last analysis examines the effect of health and job characteristics on the likelihood of receiving disability benefits among the newly work-disabled. Throughout the modeling exercise, we assess whether the associations and mechanisms linking job characteristics and work disability differ by gender.

Materials and methods

Data

Data come from the first two waves of the Health and Retirement Study (HRS) which is a nationally representative longitudinal study of the United States community dwelling population 51 to 61 (Juster & Suzman 1995). Data for this

analysis come from the first interview in 1992 and the second interview in 1994. We draw on only the first two waves because waves subsequent to baseline inconsistently measure some of the key predictor variables considered in our analysis. While the spouses of age-eligible respondents outside the 51 to 61 age range are also interviewed, we limit our analysis to those 51–61 at the first interview. We also limit the sample to those who are working at the initial interview and who do not report work disability at that time, which is the group at risk of becoming work-disabled. This allows us to analyze the onset of work disability occurring over the two-year interval between interviews and relate disability to job characteristics and health characteristics that precede the disability onset in time. There are 5999 respondents who are working and who have no work disability at the first interview. Of these, 3174 are men and 2825 are women and among this group 3019 and 2596 are interviewed at the second wave.

Measurement

Work disability is defined by the answer to a question: Do you have any impairment or health problem that limits the kind or amount of paid work that you can do? This definition is one that has been used for many years in surveys in the United States. It does not limit work disability to inability to work because, as noted earlier, inability is heavily influenced by job characteristics. Our definition of work disability is thus self-reported and does not represent disability that would be defined as such by Social Security or diagnosed by an independent medical assessment. Self-reported work disability appears to track closely with self-reports of functional limitations – trends in the measures are relatively parallel – although the prevalence of work disability in the working aged population is lower than reports of impairment (Burkhauser et al. 2002). Self-reported work ability is likely to be influenced by options for income outside the workplace. Government disability benefits are available to most ex workers who have been unable to work for an extended period of time; however, the replacement value of government benefits is relatively low for many workers in the United States. Many workers have other sources of disability insurance but the value and the availability differs markedly across workers. At the initial interview about one fourth (23.6%) of the sample reports work disability; by the second interview 525 newly disabled persons are identified among those working at Wave 1. Among the 525 who report the onset of work disability, 48 report that they are receiving disability benefits at the second interview.

Information on job characteristics in the HRS was gathered through a series of questions answered by each respondent about the conditions of his or her current job. Each person reports how frequently a job requires each of 12 characteristics that cover a wide variety of aspects of any job. These include physical efforts, lifting, and mobility; as well as concentration, manipulation of data, work with people and autonomy. They were also asked about the stress level and exposure to environmental hazards. The Appendix indicates the questions and coding used in the derivation of job characteristics. The use of self-reports about an individual's job is preferable to assuming that all those of a given occupation have jobs with the same demands which has often been necessary in studies which have information only on occupational title without information on the specific circumstances of an individual's job (Hayward et al. 1998).

We use the data to create a set of dichotomous variables representing high physical demands, high substantive complexity, the lack of job control, high stress, and exposure to environmental hazards. We based the development of these measures on a factor analysis of the 12 items, from which we derived scales representing job characteristics. Four distinct factors emerged: physical demands, substantive complexity, lack of autonomy, and stress. Only one item loaded on autonomy and stress. For the other scales, scores of items loading on each factor were summed to make an index representing each of these concepts. Where possible, the top quintile of people with jobs of each descriptor were defined as "high" to create the dichotomous variables representing high physical demands, high substantive complexity, lack of job control and high stress. If people reported that they had spent a year or longer in a hazardous job, we categorized them as having had an environmentally hazardous workplace.

Respondents reported on their health status at the time of the first interview by indicating whether they have ever been told by a doctor that they had any of a set of major diseases; or whether they currently have a number of conditions or impairments. From this list, we have chosen six conditions and diseases that represent major causes of disability to include in our analysis: heart disease, cancer (not skin), diabetes, emotional problems, back problems, and foot and leg problems. At the first interview, these six specific conditions account for more than half of all disability. New health problems occurring during the interval between waves are determined among those who did not have the condition at the first interview.

Method

Our analysis uses a hazard modeling approach to determine the effect of a set of independent variables on the (log of the) risk of becoming work disabled for those who were not

Table 1 Percentage of current workers without disability whose jobs are physically demanding, substantively complex, lacking in control, stressful, and environmentally hazardous: health and retirement study, 1992

	Men	Women
Physically demanding	21.9	16.4
Substantively complex	18.5	24.5
Lack of job control	8.4	13.5
Stressful	18.1	20.8
Environmentally hazardous	40.3	20.7
N	3174	2825

disabled at the beginning of the interval. We begin by looking at the relationship of job characteristics to the hazard of work disability for men and women with age as the only additional variable in the model – age references time in the hazard models. We then include additional variables to identify whether the effect of the job characteristics changes (declines) as a consequence of enriching the model. A decline in the effects of the job characteristics is interpreted as the newly added variables operating as intervening variables or the mechanisms through which the job characteristics work. First, we introduce health problems at the first interview to control for selectivity; then we introduce new health problems; finally we add indicators of other social, behavioral, psychological and economic life circumstances.

Results

The percentages of men and women in jobs described as physically demanding, substantively complex, lacking in control, stressful, and environmentally hazardous are shown in Table 1. More men than women have jobs characterized as physically demanding and environmentally hazardous. The difference between men and women in exposure to environmental hazards is particularly large, with men's exposure twice that of women. More women regard their jobs as substantively complex and lacking in control. The sexes do not differ much in the likelihood of having stressful jobs although slightly more women than men report job stress.

Among male workers who have no work disability when first interviewed, the likelihood of having a work disability by the second interview is related to each job characteristic except physical demands (Tab. 2). Stress, lack of job control and environmentally hazardous work increase the likelihood of work disability. Those whose jobs are characterized by a lack of control are 44% more likely to experience the onset of work disability at the end of two years. For those with stressful jobs, the risk is elevated by 65%. Those with substantively complex jobs are 40% less likely to become disabled. This protective effect may be due to the status connected to such jobs which may be a stress buffering mechanism.

Table 2 Effect of job characteristics on onset of work disability: coefficients and antilogs of hazard coefficients

	Men		Women	
	Coefficient	Antilog	Coefficient	Antilog
Age	0.075*	1.08	0.039	1.04
Physically demanding	–0.026	0.97	0.158	1.17
Substantively complex	–0.505*	0.60	–0.011	0.99
Lack of job control	0.368*	1.44	0.347*	1.41
Stressful	0.501*	1.65	0.293	1.34
Environmentally hazardous	0.405*	1.50	0.336*	1.40
N (events)	265		248	
N (cases)	2850		2543	

Among women workers, those with no job control or in environmentally hazardous occupations are 40% more likely to experience disability onset. These effects are quite similar to those for men. Although the significance level is only 0.06, those with more stressful jobs are 34% more likely to experience onset of work disability. Having a substantively complex job does not reduce the likelihood of work disability for women as it does for men. Like men, women with physically demanding jobs are not more likely than others to experience work disability.

The age specific rates of onset of work disability for males computed from the hazard equation results in Table 2 are shown in Figure 1. Calculation of the transition rates is a useful way to clarify the absolute rather than the relative level of risk implied by these relationships. This figure indicates the one-year age-specific rate of disability onset for males who have no adverse job characteristics, for those who have only one of the three adverse job characteristics, and for those with all three adverse job characteristics.

The age range of the HRS sample is especially appropriate given the eligibility for Social Security at age 62 or the end point of our age range. Under the US Social Security system, people who are disabled get reclassified as retir after they reach this early retirement age. Those who have no adverse job characteristics are likely to have an annual rate of work disability of 0.03 at age 62 while those who have stressful jobs have a rate more than twice as high (0.08). Those who have jobs that are stressful, lacking in control, and environmentally hazardous would have annual rates of work disability at age 62 almost eight times those who have no adverse job characteristics.

When health characteristics at the beginning of the interval of disability are controlled, the effect of workplace characteristics is considerably reduced for women (Tab. 3). None of the job characteristics is a significant predictor of the onset of work disability for women. On the other hand, for men, the size and significance of the coefficients on the job

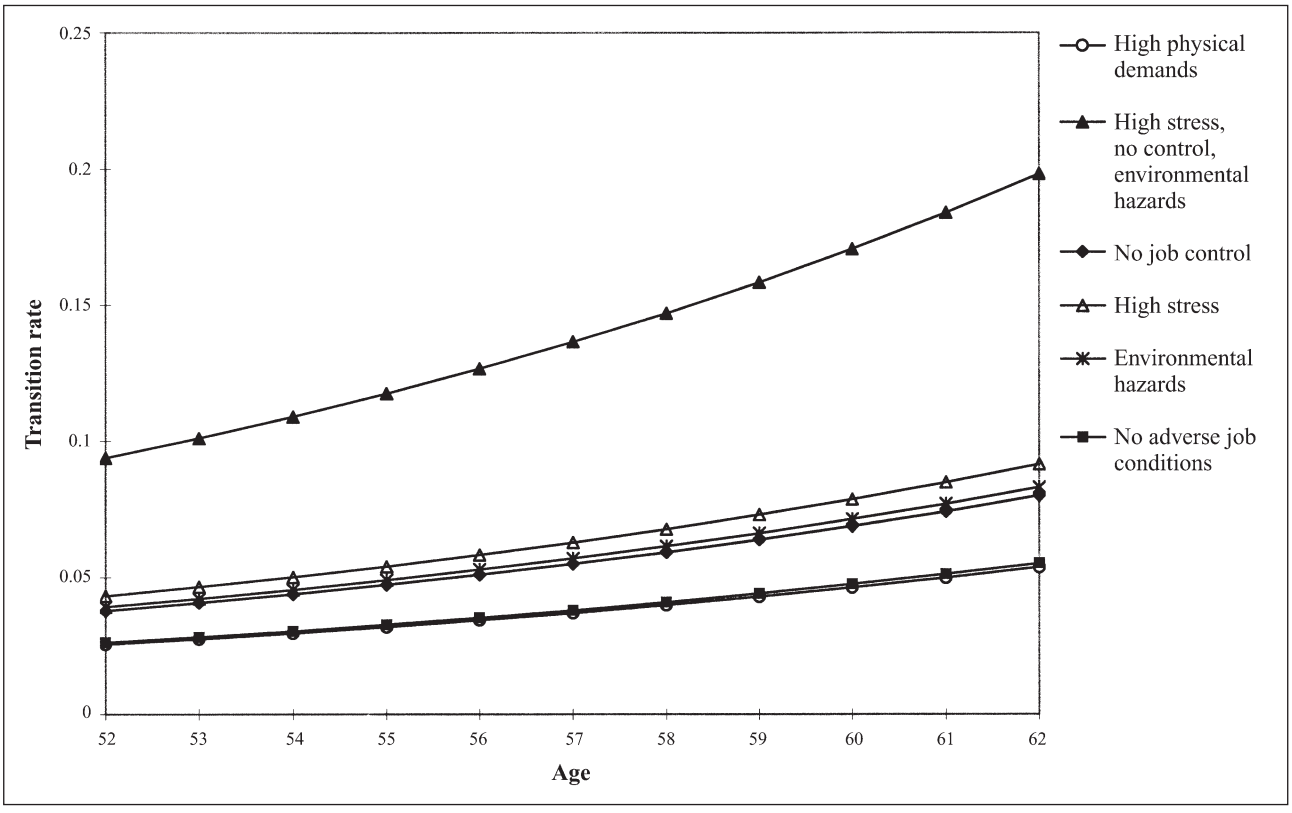

Figure 1 Annual rate of onset of work disability among male workers in the Health and Retirement Study Between Waves 1 and 2 (ages 51–61)

Table 3 Effect of job characteristics and health conditions at Wave 1 on onset of work disability coefficients and antilogs of hazard coefficients

	Men		Women	
	Coefficient	Antilog	Coefficient	Antilog
Age	0.057*	1.06	0.031	1.15
Physically demanding	–0.050	0.95	0.167	1.18
Substantively complex	–0.433*	0.65	0.025	1.03
Lack of job control	0.374*	1.45	0.306	1.36
Stressful	0.387*	1.47	0.154	1.17
Environmentally Hazardous	0.314*	1.37	0.097	1.10
Diabetes	0.600*	1.82	0.878*	2.41
Cancer	0.642*	1.90	0.495*	1.64
Heart disease	0.822*	2.27	0.471*	1.60
Emotional problems	0.728*	2.07	0.449*	1.57
Back problems	0.295*	1.34	0.773*	2.17
Foot/Leg problems	0.586*	1.80	0.523*	1.70
N	2850		2543	

characteristics stay about the same. This means that for men, both the characteristics of the job and the health conditions present at the beginning of the interval are independent determinants of a disability outcome. For women it appears that the job characteristics are important only in that they are related to the health characteristics of the job-holders.

The presence at the initial interview of all of these diseases and conditions are important determinants of disability onset for both men and women. For men each of these diseases or impairments increases the relative likelihood of being disabled by almost 100%; only back problems have a somewhat smaller effect, 34%. Among women, back problems and diabetes raise the likelihood of disability more than other diseases – more than 200%. Other diseases increase the risk somewhat more than 150%.

Another important cause of work disability is the onset of new disease. When the onset of diseases or problems in the interval is introduced into the hazard models along with job characteristics and initial disease state, new health events appear to be the most important factors determining disability onset, somewhat eclipsing the role of prior health state as well as job characteristics (Tab. 4). Getting any one of these diseases or conditions in the intersurvey interval increases the likelihood of disability onset by two to four times. For men, the job characteristics that remain significantly related to the onset of disability are having either a stressful job or an environmentally hazardous job. Even with all these health characteristics controlled, men with stressful jobs are about 50% more likely to become disabled than men

Table 4 Effect of job characteristics, presence and onset of diseases and impairments between waves on onset of work disability: coefficients and antilogs of hazard coefficients

	Men		Women	
	Coefficient	Antilog	Coefficient	Antilog
Age	0.057*	1.06	0.018	1.02
Physically demanding	0.015	1.02	0.039	1.04
Substantively complex	–0.363	0.70	0.141	1.15
Lack of job control	0.330	1.39	0.339	1.40
Stressful	0.392*	1.48	0.074	1.08
Environmentally hazardous	0.311*	1.36	0.047	0.95
Diabetes (Wave 1)	0.475*	2.11	0.862*	2.38
Cancer (Wave 1)	0.372	1.45	0.599*	1.82
Heart disease (Wave 1)	0.863*	2.37	0.517	1.68
Emotional problems (Wave 1)	0.700*	2.01	0.430*	1.54
Back problems (Wave 1)	0.243	1.28	0.951*	2.59
Foot/Leg problems (Wave 1)	0.742*	2.10	0.664*	1.94
Diabetes (new)	1.019*	2.77	0.888*	2.43
Cancer (new)	1.310*	3.71	0.808*	2.24
Heart (new)	1.203*	3.33	0.845*	2.34
Emotional problems (new)	1.050*	2.86	1.169*	3.22
Back problems (new)	0.498*	1.65	1.250*	3.49
Foot/Leg problems (new)	0.803*	2.23	0.916*	2.50
N	2575		2324	

without stressful jobs. Men in environmentally hazardous jobs have a risk that is elevated by about 150%. The reduction in the role of some of the job characteristics for men is obviously caused by the relationship of job characteristics to the new health events. The characteristics of women's jobs remain unrelated to disability onset in these equations.

We examine directly the relationship between the job characteristics and the onset of health problems while controlling for age and conditioned on initial health state in Table 5. Each job characteristic, except high physical demands is related to one of the health outcomes for men. Men with stressful and environmentally hazardous jobs are more likely to experience most of these health outcomes. Lack of job control among men is related to more diabetes and cancer. Men with substantively complex jobs experience fewer of almost all of these health problems. On the other hand, for women virtually none of the job characteristics are significantly related to any of the health outcomes. Women's jobs thus seem less related to their health as well as to their disability outcomes than men's.

In an attempt to identify other life circumstances related to work disability, we explore the effect of general levels of socio-economic status and life stresses outside the workplace. To do this, we introduce additional variables into our analysis – years of education, and self-reports of level of financial problems, health behaviors, not having sufficient friends, and dissatisfaction with ability to handle problems in life (Tab. 6). Self-reports appear appropriate as social psychological stresses and supports would have an effect relative to the perceived differences from desired or expected levels. Education is an indicator of lifelong-socio-economic status, the financial and psychological variables all indicate life stresses or available buffers to stress. The health behaviors include being a current smoker, having weight that is in the top body mass index (BMI) quartile, and being a heavy drinker; all behaviors likely to be influenced by workplace associations as well as related to a variety of health outcomes.

Even with controls for job characteristics and health, for men there is still an effect of education on disability. Men with more education are less likely than others to become

Table 5 Significant antilogs from hazard models of disease onset for persons with jobs with specified characteristics

	Diabetes	Cancer	Heart disease	Emotional problems	Back problems	Foot problems
Men						
Physically demanding	–	–	–	–	–	–
Substantively complex	0.68	0.55	0.99	0.63	–	0.98
Lack of job control	1.48	1.49	–	–	–	–
Stressful	1.52	1.63	1.56	1.51	1.03	2.10
Environmentally hazardous	1.52	1.59	1.52	1.49	1.50	1.52
N	2668	2828	2567	2770	2110	2248
Women						
Physically demanding	–	–	–	–	–	–
Substantively complex	–	–	–	–	–	–
Lack of job control	–	1.10	–	–	–	–
Stressful	–	–	–	–	–	–
Environmentally hazardous	1.08	–	–	–	–	–
N	2427	2432	2425	2409	1880	1801

– Not significant

Table 6 Effect of job characteristics, presence and onset of diseases and impairments, life stress, and education on onset of work disability: coefficients and antilogs from hazard model coefficients

	Men		Women	
	Coefficient	Antilog	Coefficient	Antilog
Age	0.073*	1.08	0.035	1.04
Physically demanding	–0.275	0.76	–0.079	0.92
Substantively complex	–0.232	0.79	0.260	1.30
Lack of job control	0.176	1.19	0.242	1.27
Stressful	0.383*	1.47	0.040	1.04
Environmentally hazardous	0.308*	1.36	–0.035	0.97
Diabetes (Wave 1)	0.425	1.53	0.781*	2.18
Cancer (Wave 1)	0.599	1.82	0.675*	1.96
Heart disease (Wave 1)	0.555*	1.74	0.207	1.23
Emotional problems (Wave 1)	0.817	2.26	1.387*	4.00
Back problems (Wave 1)	0.247	1.28	0.922*	2.51
Foot/Leg problems (Wave 1)	0.623*	1.86	0.724*	2.06
Diabetes (new)	1.018*	2.77	0.907*	2.48
Cancer (new)	1.764*	5.84	0.889*	2.43
Heart (new)	1.071*	2.92	0.644	1.90
Emotional problems (new)	1.039*	2.83	0.939*	2.56
Back problems (new)	0.539*	1.72	1.345*	3.84
Foot/Leg problems (new)	0.942*	2.57	0.888*	2.43
Education	–0.091*	0.91	–0.033	0.97
Financial dissatisfaction	0.313	1.37	0.174	1.19
Friendship dissatisfaction	0.313	1.37	–0.544	0.58
Dissatisfaction with handling life's problems	–0.279	0.76	0.457	1.58
Current smoker	0.187	1.21	0.617*	1.85
High quartile BMI	0.199	1.22	0.375*	1.45
Heavy drinker	0.440	1.55	0.506	1.66
N	2392		2296	

Table 7 Effect of job characteristics, presence and onset of diseases and conditions, and income on receipt of benefit at Wave 2 among those who become work disabled between Wave 1 and 2: hazard regression results

	Men		Women	
	Coefficient	Odds ratio	Coefficient	Odds ratio
Age	0.123	1.13	0.089	1.09
Sex	–	–	–	–
Physically demanding	0.603	1.83	–0.773	0.46
Substantively complex	0.121	1.13	–0.138	0.87
Lack of job control	1.694*	5.44	0.547	1.73
Stressful	0.019	1.02	–0.438	0.65
Environmentally hazardous	0.647	1.91	1.046*	2.85
Diabetes (Wave 1)	0.871	2.39	0.561	1.75
Cancer (Wave 1)	1.039	2.83	–1.651	0.19
Heart disease (Wave 1)	0.242	1.27	1.024	2.78
Emotional problems (Wave 1)	1.345	3.84	–1.055	0.35
Back problems (Wave 1)	–0.026	0.97	–0.462	0.63
Foot/Leg problems (Wave 1)	0.489	1.63	0.284	1.33
Diabetes (new)	1.602*	4.96	1.630*	5.10
Cancer (new)	1.550	4.71	0.785	2.19
Heart (new)	0.003	1.00	1.395	4.03
Emotional problems (new)	1.374	3.95	0.079	1.08
Back problems (new)	–0.699	0.50	0.325	1.38
Foot/Leg problems (new)	–0.883	0.41	0.993	2.70
Income quartile 1	–1.340	0.26	0.046	1.05
Income quartile 2	0.752	2.12	0.258	1.29
Income quartile 4	0.203	1.23	0.429	1.54
N	260		241	

disabled. Even with the same health and job characteristics, a man with one more year of education would be 9% less likely to become disabled. The other measures of financial and social stress are not related to work disability for either men or women. Women who are smokers or who are overweight are relatively more likely to become work disabled. With all of these controls, men with more stressful and environmentally hazardous jobs are still more likely to become work disabled.

Finally, we examine what factors differentiate the work-disabled who receive disability benefits from those who do not among those who have had onset of disability during the interval (and who were working and not disabled at the first interview) (Tab. 7). Receipt of disability benefits from the Social Security program in the United States is generally limited to those who will have long-term disability which often must be demonstrated before benefits can begin. For this reason only a small number of those who have become work-disabled in the two-year period are already receiving benefits. If the characteristics of jobs influence receipt of benefits, we might expect that those who have demanding jobs would be more likely to apply for benefits with the same health status. Given job characteristics, we also might expect that those with more severe health problems with a low likelihood of recovery would also be more likely to apply for benefits. Family income (in quartiles with the 3rd quartile omitted) at the beginning of the interval before disability onset is included in this analysis on the assumption that those with lower income would be more likely to request disability benefits when health and job demands were equal. For those with low income, disability benefits would come closer to replacing income derived from work. Results indicate that among men who experience work disability onset, those who have low levels of autonomy or job control are more likely to begin receiving benefits. Among women, it is those in environmentally hazardous jobs who are more likely to receive benefits. The only health conditions that distinguish those who receive benefits from those who do not are diabetes and

cancer. These conditions may be ones that are likely to continue and potentially worsen. Results indicate that income is not related to disability benefits. These variables do not suggest much differentiation in benefit receipt among the work-disabled by job, disease, or social status.

Discussion

Our analysis has provided us with a number of insights into the process of work disability onset. Most importantly, the process differs for men and women. For instance, it has long been assumed that men had more stressful jobs than women and that this was one of the reasons they had high rates of some diseases and disability. According to self-reports from this national sample, slightly fewer men than women have stressful jobs. The major characteristic differentiating the jobs of men and women in this analysis is exposure to environmental hazards which is reported to be more common among men. Women are likely to report less autonomy at work.

In addition, people have often thought that it is those with physical jobs who are most likely to be at risk of disability. This analysis indicates that among the job characteristics considered here – physical demands, substantive complexity, lack of job control, stress, and environmentally hazardous - physical demands is the characteristic least linked to disability. This may reflect a change in the demands of jobs in recent decades. On the other hand, among men stress and the presence of environmental hazards are the characteristics with the most persistent relationship to disability. Men with multiple risks attached to their jobs will experience high levels of disability,

In contract to men, women's job characteristics do not appear to have a strong influence on either disability onset or onset of health problems. Women with substantively complex jobs do not appear to be buffered from disability as much as men; nor do women with stressful jobs appear as relatively disadvantaged as men with stressful jobs. The disappearance of the relationships between job characteristics and disability onset with controls for initial health status indicates that women with low job control and high environmental hazards are also women with more health problems initially. The marked differences in the relationships of job characteristics to the onset of health problems in women and men indicates that jobs affect lives of the two gender groups quite differently. Of course, it is possible that women and men's reports of job characteristics are relative to a standard that differs between the sexes and thus reports are linked to different levels of risk. It is also possible that women have more ability to adapt their job circumstances to their current situation.

The relative effect of recent health problems as a cause of work disability is fairly similar for both genders. Onset of virtually all of the health problems examined was likely to multiply the risk of experiencing work disability for both men and women. For men the link between poor working conditions and subsequent health problems is strong. For women, health problems appear to be caused by other life circumstances and the characteristics of work may play only a minor role. It is certainly true that adverse working conditions are often linked to a whole set of difficult life circumstances and it may be hard to disentangle the effects of many of these factors which have long term effects over an entire life span in a population in the late working ages.

Finally, among those who are work-disabled the receipt of disability payments does not appear to be strongly linked to either job or health characteristics; nor does it appear to be different for men and women. Receipt of disability benefits is also not linked to family income in this analysis. Of course, these relationships could be altered if a longer time period were analyzed with increases in the number of benefit recipients.

We should note that our analysis is limited to the onset of disability in this age group. We are not including those who are already work-disabled in our study. We limit our analysis to the nondisabled group in order to improve our ability to examine causation. In doing so, however, we do not include those whose disability occurs earlier in life.

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Zusammenfassung

Arbeitsplatzcharakteristika und das Auftreten von Arbeitsunfähigkeit bei Männern und Frauen

Fragestellung: Dieser Artikel untersucht den Zusammenhang von Arbeitsplatzcharakteristika und dem Auftreten einer Arbeitsunfähigkeit bei Frauen und Männern im höheren Arbeitsalter in den USA. Wir untersuchten auch, ob der Zusammenhang weiterhin besteht, wenn für das Vorkommen der wichtigsten chronischen Krankheiten kontrolliert wird. Weiterhin befassten wir uns mit der Frage, ob die Arbeitsplatzcharakteristika letztendlich mit dem Erhalt einer Invalidenrente in Verbindung stehen.

Methoden: Die nationalen Daten stammen von der Gesundheits- und Ruhestandsbefragung und sind repräsentativ für frei lebende 51- bis 61-jährige Personen im Jahr 1992. Das Auftreten einer Arbeitsunfähigkeit wurde für jene die in Welle 1 (N = 5 999) arbeiten anhand eines Gefährdungs-Modellansatzes eingeschätzt. Die logistische Regressionsanalyse für Invalidenrenten wurde für eine Gruppe von 525 gefährdeten Personen durchgeführt, die vor dem zweiten Interview arbeitsunfähig wurden.

Ergebnisse: Das Auftreten einer Arbeitsunfähigkeit und von Gesundheitsproblemen bei Frauen scheint weniger mit den Arbeitsplatzcharakteristika in Zusammenhang zu stehen als bei Männern. Bei Männern besteht ein Zusammenhang von Arbeitsunfähigkeit mit Stress bei der Arbeit, Unsicherheit des Arbeitsplatzes und gefährlichen Umweltbedingungen, aber nicht mit der körperlichen Beanspruchung. Die Beanspruchung einer Invalidenrente ist für arbeitsunfähige Personen unabhängig von den meisten Arbeitsplatzcharakteristika oder gesundheitlichen Gegebenheiten.

Schlussfolgerungen: Das Verständnis der verschiedenen Situation von Frauen und Männern in Bezug auf eine Arbeitsunfähigkeit und im Hinblick auf den Zusammenhang von Arbeit und Gesundheit ist wichtig für die Entwicklung neuer Strategien.

Résumé

Caractéristiques du lieu de travail et début de l'incapacité de travail chez les hommes et les femmes

Objectifs: Cet article étudie l'association entre les caractéristiques du travail et l'incapacité de travail chez des hommes et des femmes d'un âge avancé aux Etats-Unis. Nous examinons si l'association persiste après ajustement pour la survenue de maladies chroniques sévères. Nous examinons également si les caractéristiques du travail sont associés avec l'obtention d'une pension d'invalidité.

Méthodes: Les données proviennent du Health and Retirement Survey et sont représentatives des personnes non institutionnalisées de 51 à 61 ans, sur le plan national, en 1992. Le début de l'invalidité est estimé en modélisant le risque pour ceux qui travaillent au cours de la première phase (N=5 999). Les pensions invalidité sont analysées à partir d'une régression logistique basée sur un groupe à risque de 525 personnes qui deviennent invalides avant le second interview.

Résultats: Les débuts de l'incapacité et les problèmes de santé apparaissent moins liés aux caractéristiques du travail pour les femmes que pour les hommes. Pour les hommes, l'incapacité de travail est liée à des emplois stressants, au manque de contrôle sur son travail et aux conditions environnementales dangereuses mais elle n'est pas associée à la difficulté physique. L'obtention de pension invalidité pour ceux qui ont une incapacité de travail n'est pas en rapport avec les caractéristiques de l'emploi ou les conditions de santé.

Conclusions: Comprendre les différents processus qui mènent à l'incapacité de travail chez les hommes et les femmes et leur relation avec le travail et la santé selon le sexe est important pour adapter les stratégies d'intervention.

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Appendix

Job characteristics

Concept	Items used in scale	Item coding	Scale	Variable
	My job requires[a]			
Physical demand[a]	Physical effort	1–4	3–12	High physical demand (7+)
	Lifting heavy loads	1–4		
	Stooping/Kneeling/Crouching	1–4		
Substantive complexity[a]	Intense concentration	1–4	6–24	High substantive complexity (21+)
	Dealing with people	1–4		
	Analyzing data/information	1–4		
	Keeping up pace set by others	1–4		
	Learning new things	1–4		
	A very good memory	1–4		
Autonomy[a]	Freedom to decide how to do work	1–4		No job control = 1
Stressful[b]	A lot of stress	1–4		High stress = 1
Environmentally hazardous[c]	Exposure for a year or more to dangerous chemicals or other hazards	0–1		1 = yes

[a] Possible responses: (1) none or almost none of the time; (2) some of the time; (3) most of the time; (4) all of the time
[b] Possible responses: (1) strongly agree; (2) agree; (3) disagree; (4) strongly disagree
[c] Individuals are sometimes exposed to dangerous chemicals or other hazards at work. Have you ever had to breathe any kind of dust, fumes, or vapors, or been exposed to organic solutions or pesticides at work?